THE ADVANCED MEDICATION REVIEW

PCNE WORKING SYMPOSIUM ON MEDICATION REVIEW 2009
WORKSHOP 3

Facilitator: Nina Griese
n.griese@abda.aponet.de
Aim of the workshop

- To define an advanced medication review
- To develop a flowchart for an advanced medication review plus the fundamentals for an interview guideline
Questions

- What purpose has an advanced medication review?
- What are core elements of an advanced medication review?
- What drug related problems can be detected and should therefore be checked during an advanced medication review? and
- What data do we need to detect these problems? (or better the other way round?)
- Do we need instruments for the detection of DRP like MAI, Beers, and can they be implemented in an interview guideline?
Medication review is an evaluation of patient’s drugs with the aim of optimizing the outcome of drug therapy.
(by detecting, solving and preventing DRP)
Advanced medication review

- Why is it done (aim)
- What is done (core elements)
  - Interview guideline
- Data needed
- Who does it, who else is involved
- On whom is it done

????????
What is the purpose of an advanced medication review?

<table>
<thead>
<tr>
<th>Types of medication review</th>
<th>Address issues relating to</th>
<th>Patient present</th>
<th>AI Rx drugs</th>
<th>Plus OTC</th>
<th>Review of medicines and or condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 Prescription review</td>
<td>Technical issues relating to the prescription</td>
<td>No</td>
<td>Possibly</td>
<td>No</td>
<td>Medicines</td>
</tr>
<tr>
<td>Type 2 Concordance and compliance review (MUR)</td>
<td>Patient’s medicine-taking behavior</td>
<td>Usually</td>
<td>Yes</td>
<td>Yes</td>
<td>Medicines use</td>
</tr>
<tr>
<td>Type 3 Clinical medication review</td>
<td>Optimize patient’s drug therapy and drug use in the context of their clinical condition</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Medication regimen, use of medicines and clinical condition</td>
</tr>
</tbody>
</table>

What are core elements of a clinical medication review?
Possible core elements

- Medication therapy review
- A personal medication record
- A medication action plan
- Intervention and referral
- Documentation and follow-up
Advanced medication review

- Data collection
- Assessment
- A written report: Medication care plan proposal
- Care plan agreement between physician and pharmacists
- Agreement with patient
Pharmacist: data mining

Pharmacy or health care institution: medication history

Physician: medical history

Patient: knowledge, use and medication experiences

Drugs (nice to have)

Pharmacist: Assessment

Pharmacist: Medication care plan proposal

Pharmacist and Physician: Care plan agreement

Agreement between care team and patient
### Data needed

<table>
<thead>
<tr>
<th>Type</th>
<th>Drugs</th>
<th>Medical history</th>
<th>Medication history including dispensing data</th>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical medication review</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Medical history: diagnosis and symptoms, prescribed medication, clinical observation and laboratory data (has to be defined)
Advanced medication review

- Who does it: pharmacists performs the review in collaboration with the physician and if needed with other health care service providers
- On whom is it done: Patients in need of care
Data collection forms

- Patient interview form
  - HAS TO BE DEVELOPED
New checklist of categories

The aim is to

- Safety
- Effectiveness
- Efficiency
- Feasibility

We need a new list to check these items
What methods do we need for MR

- Explicit?
- Implicit?
- Combination of both?
- Indicators?

- What DRP should/can be detected?
Medication appropriateness

- Explicit criteria
  - Standardized guidelines
  - Focus on a single drug or drug class
  - Designed to be applicable to medication orders/prescriptions with minimal clinical data
  - Can be incorporated into computerized systems

- Implicit criteria
  - Use clinical knowledge and judgment to assess prescribing appropriateness
Some Methods, more details

- **Using implicit criteria (e.g. MAI, Cipolle-Strand, Dader)**
  - Strand LM. et al., Drug-related problems: their structure and function. *DICP*. 1990;24:1093-1097
  - Faus-Dader MJ. El programa Dadér. Pharm Care Esp 2000;2:73-74

- **Using explicit criteria (e.g. Beers)**

- **Using implicit and explicit criteria (e.g. McLeod)**
Instruments/tools

- Computer driven
  - Criteria and quality depends on
    - Software
    - Drug database quality
    - Patient database quality
  - Suitable for retrospective, but especially prospective MR
Adaptations

- All standardized methods need to be adapted to:
  - Era / time
  - Setting / nationality / culture
  - Available drug sets

- Many European examples:
  - Beers adapted for Poland, Germany, the Netherlands, Portugal
  - MAI adapted for Denmark, Belgium, Netherlands
Beers criteria

- Explicit criteria for appropriateness, compiled with an expert panel
- List of medications that are generally considered inappropriate when given to elderly people
- Frequently adapted to country and time (2003, last time in USA)
- Frequently used for research purposes on larger databases
- Some judgments depend on diagnosis or conditions

About 80 drugs or drug-groups including:
- Long acting Benzodiazepines
- Pentazocine
- Amitriptylline
- All barbiturates (except for epilepsy)
- Ticlopedine
- Cimetidine
- Estrogens
List of inappropriate prescribing for elderly people

Based on expert consensus developed through
- Extensive literature review
- Questionnaire evaluation using Delphi technique

Ranking of clinical importance of risks and suggestion of alternative therapies

Mixed explicit and implicit system

Canadian method for detecting PIPs (potentially Inappropriate Medication)
- drugs generally contraindicated for elderly people because of an unacceptable risk–benefit ratio
- prescription of drugs that can cause drug–drug interactions
- prescription of drugs that can cause drug–disease interactions

Requires information about diagnosis

Based on expert consensus developed through
- Extensive literature review
- Questionnaire evaluation using Delphi technique

Ranking of clinical importance of risks and suggestion of alternative therapies
MAI – Medication appropriateness index (1)

- Designed to measure ten components of prescribing
- Support from explicit definitions and instructions for use
  - Combination of explicit criteria with implicit judgment
- Designed to be applied to the medical record by a clinician, usually a pharmacist
- Not designed to include the needs of the individual patients

MAI – Medication appropriateness index (2)

- Indication
- Effectiveness
- Dosage
- Direction
- Drug-drug interactions
- Drug-disease interactions
- Direction practicality
- Duplication
- Duration
- Medical expense

For each criterion:
- Operational definitions
- Explicit instructions
- Examples
MAI – Medication appropriateness index (3)

- 3-point scale to rank as “appropriate”, “marginally appropriate” or “inappropriate”
- Weighting scheme permits a score for each drug and also an overall patient score
- Developed for use in outpatient elderly clinics
  - Medical data easily accessible
- Modifications exist for different settings, e.g.
  - Ambulatory older persons
  - Community pharmacy


MAI – Medication appropriateness index (4)

Specific instructions for index criterion direction

Question: Are the directions correct?

1 Correct  2 Incorrect  3 do not know

Definition
Directions are defined as the instructions in the use of a medication by a patient. The question assesses the route of administration, relationship to food and liquid, the schedule and time of the day

Instructions
The directions are incorrect when they specify the wrong route of administration, give wrong or no instructions regarding food and liquid (when they exist),…..

Examples
Simvastatine 40 mg/day: Incorrect (must specify in the evenings)
New screening tools using explicit criteria

- **STOPP** (Screening Tool of Older Persons’ potentially inappropriate Prescriptions) Gallagher P, O’Mahony D. Age Aging 2008;37:673-9

- **START** (Screening Tool to alert doctors to the right treatment. Barry PJ, Gallagher P, Ryan C, O’Mahony D. Age Aging 2007;36:628-31
Pharmacist focused. The pharmacist assumes responsibility for drug therapy outcomes

Attempts to identify medication therapy problems and common causes

Protected system, best used with consent of authors and University of Minnesota

Results are being pooled

Remuneration negotiated

Also used in elsewhere (eg Australia)
Drug-related problems – Cipolle-Strand

- Categories and common causes
  - Unnecessary drug
  - Needs additional drug therapy
  - Ineffective drug
  - Dosage too low
  - Adverse drug reaction
  - Dosage too high
  - Noncompliance
  - Drug interactions
  - Need for monitoring

Dadér method/ Dadér Program

- Based on the Granada Consensus about pharmaceutical care in Spain
- Pharmacist focused
- Similar to Strand-Cipolle system, but for especially Spanish-language settings. Now 3rd revision
- Protected by the University of Granada, used often in South Americas too.
- Part of the concept of ‘Drug-Therapy follow up’ (called Pharmaceutical care elsewhere)

Dader negative outcomes:
- Untreated health problem
- Effects of unnecessary drug
- Non-quantitative in effectiveness (wrong drug)
- Quantitative ineffectiveness (dosage)
- Non qualitative unsafe (allergy)
- Quantitative unsafe (side effect)
Clinical indicators

- Indicators of preventable drug-related morbidity (PDRM)
  - Strategy to reduce drug related morbidity and drug related admission
  - To identify patients at risk

- Development of 52 indicators for PDRM in the US\(^1\)
  - Developed from a literature review
  - Validated using the Delphi technique

- Assessment of transferability to UK and generation of new indicators\(^2\)


Examples for clinical indicators

Pattern of care:
Use of an ACE inhibitor without baseline monitoring of electrolytes, subsequent monitoring at 10-14 days and then every six month thereafter

Outcome: Hyperkalaemia

Pattern of care:
In the absence of any contraindication, failing to prescribe aspirin in a patient with a history of myocardial infarction

Outcome: A second myocardial infarction

---